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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,876	07/07/2003	John C. Jones	527122000300	6966

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EXAMINER

DINH, DUC Q

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 12/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/612,876	Applicant(s) JONES ET AL.	
	Examiner DUC Q. DINH	Art Unit 2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 12 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's election without traverse of claims 1-12 in the communication filed on September 19, is acknowledged. An Office Action is provided as follows.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In the instant case claim 1 recites "the area of a second sub-pixel is not substantially a multiple of area of the first separately addressable sub-pixel" and "the first and second sub-pixels having the same number of selectable transmission/reflection levels", the specification is not enabling as to how one of ordinary skill would actually make the "area of a second sub-pixel is not substantially a multiple of area of the first separately addressable sub-pixel" and how "the first and second addressable sub-pixels having the same number of selectable transmission/reflection levels" with "the area of

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a second sub-pixel is not substantially a multiple of area of the first separately addressable sub-pixel”.

The examiner examines the Application based on the best understood of the claimed language.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Regarding claim 11, the terms “ $2:2n+1$; $n:2n+1$; or $n+1:2n+1$ ” render the claim indefinite because it is unclear whether n is an integer numbers or real numbers.

Drawings

4. Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The informal drawings are not of sufficient quality to permit examination. Accordingly, replacement drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to this Office action. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the

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changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action.

Applicant is given a TWO MONTH time period to submit new drawings in compliance with 37 CFR 1.81. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a). Failure to timely submit replacement drawing sheets will result in ABANDONMENT of the application.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “the area of a second sub-pixel is not substantially a multiple of area of the first separately addressable sub-pixel” and “an addressing means or selectively addressing the sub-pixels...” in claim 1; “the area of each separately addressable sub-pixel is not multiple area of the next smallest separately addressable sub-pixel” in claim 6 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

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application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-2, 5-7 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes et al. (5,905,482), hereinafter Hughes, in view of Bock et al. (U.S Patent No. 6,417,868), hereinafter Bock.

In reference to claim 1 Hughes discloses a light modulating device 1 (Figs 1-2) having at least one pixel (Fig. 14) comprising a plurality of separable addressable sub-pixels of different areas (1) and (2) wherein the area of the first separably addressable sub-pixel (1) is smaller than the area of a second separably addressable sub-pixel (2) and addressing means (driver 12 and 13; Fig. 1) for selectively addressing the sub-pixels so as to select any one of more than two transmission/reflection levels, the first and second sub-pixels having the same number of selectable transmission/reflection levels (col. 11, lines 30-41).

Accordingly, Hughes discloses everything except the area of the second sub-pixel is not substantially a multiple of the area of the first separately addressable sub-pixel.

Bock discloses a display device comprising a plurality of pixels. Each pixel comprising plurality of sub-pixels whose values is not substantially a multiple area of the other sub-pixels (col. 3, lines 65 and col. 4, lines 20-31, Fig. 2 and 3).

It would have been obvious for one of ordinary skill in the art at the time of the invention to modified the ratio of the sub-pixel areas with areas is not substantially a multiple area of other sub-pixels in the device of Hughes in view of the teaching of Bock because it would optimize the numbers of the grey levels and minimized numbers of line drivers (col. 3, lines 7-10 of Bock).

In addition, **absent a showing of criticality** and/or unexpected results, it would been obvious to one having ordinary skill in the art to relocate the pixel display unit as desired as was judicially recognized with IN RE ROSE which recognizes that the change in size or range of well known elements is normally not directed toward patentable object matter.

In reference to claim 2, Hughes discloses the addressing means is adapted to address each sub-pixel with any one of a predetermined set of addressing waveforms (Fig. 5, col. 9, lines 21-31).

In reference to claim 5, Hughes discloses the area of the second separately addressable sub-pixel has the next largest area to the first addressable sub-pixel (Fig. 14, the second sub-pixel has the next largest area to the first sub-pixel).

In reference to claims 6 and 7, refer to the rejection as applied to claim 1 and Fig. 3 of Bock discloses in Fig. 3, the area of each separably addressable sub-pixel is not multiple area of the next smallest separably addressable sub-pixel (col. 4, lines 20-31).

In reference to claim 10, Hughes discloses in Fig. 14, there are only two addressable sub-pixel.

In reference to claim 11, Hughes discloses the ratio areas of the first and the second addressable is chosen from $2:2n+1$ when $n=3/2$; i.e. ratio $\frac{1}{2}$ of the first and the second sub-pixel areas (See the sub-pixels with the ratio 1:2 in Fig. 14-15).

8. Claims 3-4, 8-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes et al. (5,905,482), hereinafter Hughes, in view of Bock et al. (U.S Patent No. 6,417,868), hereinafter Bock as applied to claims 1-2, 5-7 and 10-11 above and further in view of Applicant Admitted Prior Art, pages 1-4 Fig. 1, hereinafter, AAPA.

In reference to claims 3 and 4, the combinations of Hughes and Bock do not disclose the first and second sub-pixels each comprising n latching regions, each latching regions having a different latching threshold and the first and second sub-pixels are adapted to exhibit the same number of partial latching level.

The AAPA discloses each sub-pixel of a divided pixel can be sub-divided area, i.e. latching regions, with different latching thresholds and are adapted to exhibit the same number of partial latching level (page 4, lines 11-24).

In reference to claim 8, the AAPA discloses the latching regions adapted such that, in certain conditions, partial latching of a latching region can occur (after blanking level the pixel into one stable state and intermediate voltage is applied; page 1, lines 31-34).

In reference to claim 9, the AAPA discloses the ratio of the addressable sub-pixels is chosen so that there is no redundant grey levels when operating conditions that allow partial latching and also when operating conditions that do not allow partial latching (at least tow of the bits are addressed with more than tow grey levels, i.e. more than just black and white transmission/reflection, and at least one bit is address lesser number of grey level, i.e. there is no

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redundant grey levels; (page 1, line 32-col. 2, line 2) and bipolar pulse are required to prevent unwanted latching effects due to a net DC across the pixel, i.e.: not allow partial latching).

In reference to claim 12, a zenithal bistable liquid crystal display as claimed.


Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUC Q DINH whose telephone number is (571) 272-7686. The examiner can normally be reached on Mon-Fri from 8:00.AM-4:00.PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edouard Patrick can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DUC Q DINH
Examiner
Art Unit 2674
DQD
November 23, 2005


PATRICK N. EDOUARD
SUPERVISORY PATENT EXAMINER